$$\text{The amount of fentanyl in } \mu g = \frac{A_{samp} * D_f}{WSI\ R_f OTR}$$

A_{samp}=Area of fentanyl in sample preparation

D_f=Dilution factor of fentanyl sample solution preparation (10.0 mL×10.0 ml/6.0 mL)

WSI R_f OTR=Working standard I response factor over the run

The fentanyl in the cone, induction port and expansion chamber is determined according to the following calculation:

A_{samp}=Area of fentanyl in sample preparation

V_{samp}=Volume of fentanyl in sample solution preparation (200 mL)

WSI R_f rOTR=Working standard I response factor over the run

The respirable dose for 2, 4, 6, and 8 mg/mL is calculated as follows:

Respirable dose in μg=Sum of the Drug Mass in Particle Size Fraction Less Than 9 μm (μg)

The respirable dose for 1 mg/mL is calculated as follows:

Respirable dose (μg)=Sum of the drug mass in particle size fraction less than 9 μg (μg)/2 (number of actuations)

The respirable fraction is calculated as follows:

$$\text{Amount of fentanyl in } \mu g = \frac{A_{samp} * V_{samp}}{WSI\ R_f OTR}$$

The particle size cutoff diameters for reporting is set forth in Table 48 below.

TABLE 48

Impactor Component	Particle Size Grouping
Expansion Chamber, Induction Port, and Cone	≥9 μm
Plate 0	
Plate 1	9 μm > X ≥ 5.8 μm
Plate 2	<5.8 μm
F	

The results for the fentanyl sample assay results in μg, the respirable dose in the particle size fraction less than 9 μm (as per Table 48) in g, and the percent respirable dose less than 9 μm in percent to one decimal place were reported.

The Certificate of Analysis for the determination of the respirable 1 mg/mL dose set forth in Table 49 below.

TABLE 49

Determination of Respirable Dose, 1 mg/mL Fentanyl

Test	Method	Specification
Assay of Fentanyl in sublingual spray samples	Described in Example 17	Report Results
Determination of respirable dose in fentanyl sublingual spray by cascade impaction		Report Results

CI Run	Sample	Fentanyl (μg/dose)	Particle Size groupings	Groupings percent	Average Shot weight (mg)	Total Mass <9 μm (μg)	Respirable dose <9 μm (μg)
1	Globe	76.5694	≥9 μm	96.4	85.4	2.9	3.6
	Plate 0	0.5479					
	Plate 1	0.6228	9 μm > X ≥ 5.8 μm	0.8			
	Plate 2	0.4746	<5.8 μm	2.9			
	Filter	1.8149					
2	Globe	78.6941	≥9 μm	96.6	84.0	2.8	3.4
	Plate 0	0.6746					
	Plate 1	0.6217	9 μm > X ≥ 5.8 μm	0.8			
	Plate 2	0.5000	<5.8 μm	2.6			
	Filter	1.6740					
3	Globe	78.0529	≥9 μm	97.1	85.3	2.3	2.9
	Plate 0	0.5082					
	Plate 1	0.5429	9 μm > X ≥ 5.8 μm	0.7			
	Plate 2	0.4185	<5.8 μm	2.2			
	Filter	1.3596					
Average percent respirable dose							3.3

Many other variations of the present invention will be apparent to those skilled in the art and are meant to be within the scope of the claims appended hereto, including but not limited to the particular unit dose or bi-dose devices and the particle size range of fentanyl produced, as well as other numerical parameters described in the examples, and any combination thereof.

What is claimed is:

1. A sublingual formulation comprising from about 0.1% to about 0.9% by weight fentanyl, a free base or a pharmaceutically acceptable salt thereof, or a derivative thereof, from about 20% to about 60% by weight ethanol and from about 4% to about 6% by weight propylene glycol.